

Project Number
17.01352



Date
5/11/2017

Lab 1
Sphere

Test Sample Description

Catalog Number: P350064-129-30
Description: 15" LED Pendant-Mount

Photometry

Test Method: IES LM-79-08 § 10
Preburn Time: 0:05
Time To Stabilize: 0:45
Total Operating Time: 1:28

Input Voltage (Volts): 119.9
Input Current (Amps): 0.232
Input Wattage (Watts): 27.8
Ambient Temp (°C): 24.2



Sphere

Test Method: IES LM-79-08 § 9.1 & 12.1
Preburn Time: 8:00
Time To Stabilize: 1:12
Total Operating Time: 9:12

Input Voltage (Volts): 120.0
Input Current (Amps): 0.237
Input Wattage (Watts): 27.7
Ambient Temp (°C): 24.5



Hubbell Lighting, Inc.

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Greenville, SC 29607
www.hubbellighting.com

Checked (sphere): B. LEE
Checked (photometry): M. HALL
Approved: P. McCARTHY



This report shall not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

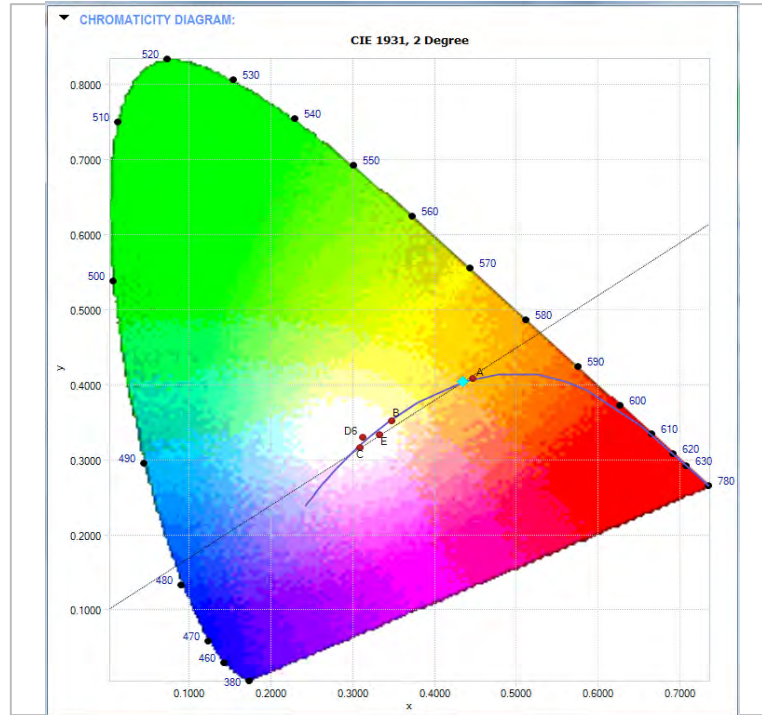


Lamp Cat#: LM281B
 Lamp Desc: 56 - Samsung 3000K LEDs
 Driver Desc: 1 - Espen VEL30054MVHDA-10V-1

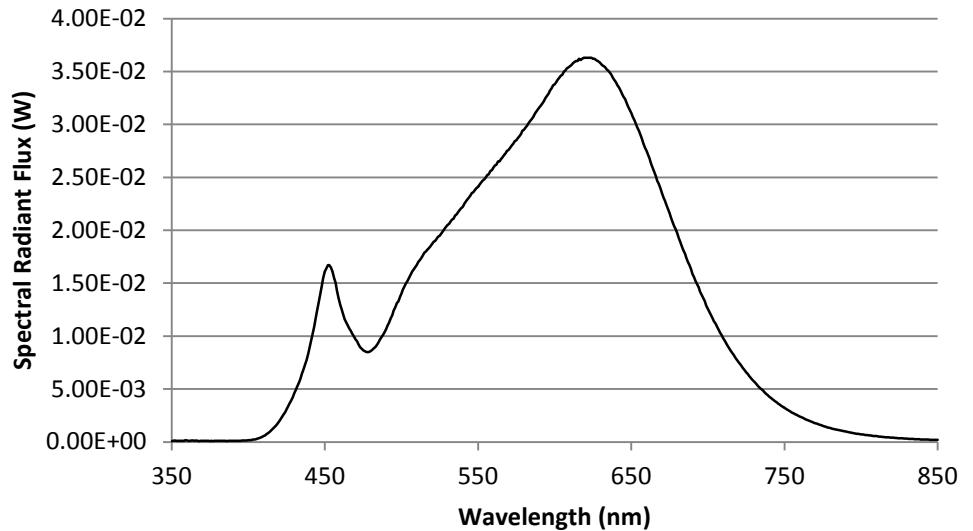
Efficacy: 67.0 LPW S/P Ratio: 1.4 LM/LM

Spectral Results

Name	Value	Unit
Φ	6.51	watts
$\Phi(v)$	1855	lumens
$\Phi(v')$	2627	lm'
Chrom x	0.4352	
Chrom y	0.4044	
Chrom u	0.2494	
Chrom v	0.3475	
Duv	0.0003	
Chrom u'	0.2494	
Chrom v'	0.5212	
CCT	3029	K
Purity	52	%
λ (dom)	582.6	nm
FWHM	167.1	nm
λ (peak)	622.3	nm
λ (center)	600.4	nm
λ (centroid)	594.5	nm
SDCM	Cool White	
RA	92	
Corr. Coef.	0.000386882	
Correlation	0.0054	
R1	92.2	
R2	95.4	
R3	97.4	
R4	92.4	
R5	91.8	
R6	94.3	
R7	92.8	
R8	82.4	
R9	59.5	
R10	88.5	
R11	92.8	
R12	82.6	
R13	92.9	
R14	97.9	



Spectral Distribution of Radiant Flux



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PREPARED FOR: PROGRESS

CATALOG NUMBER: P350064-129-30

LUMINAIRE: 15" LED Pendant Mount

LAMP CAT. NO.: LM281B

LAMP: 56- SAMSUNG 3000K LEDs

BALLAST CATALOG NUMBER: VEL30054MVHDA-10V-1

BALLAST: 1- ESPEN

MOUNTING: Ceiling

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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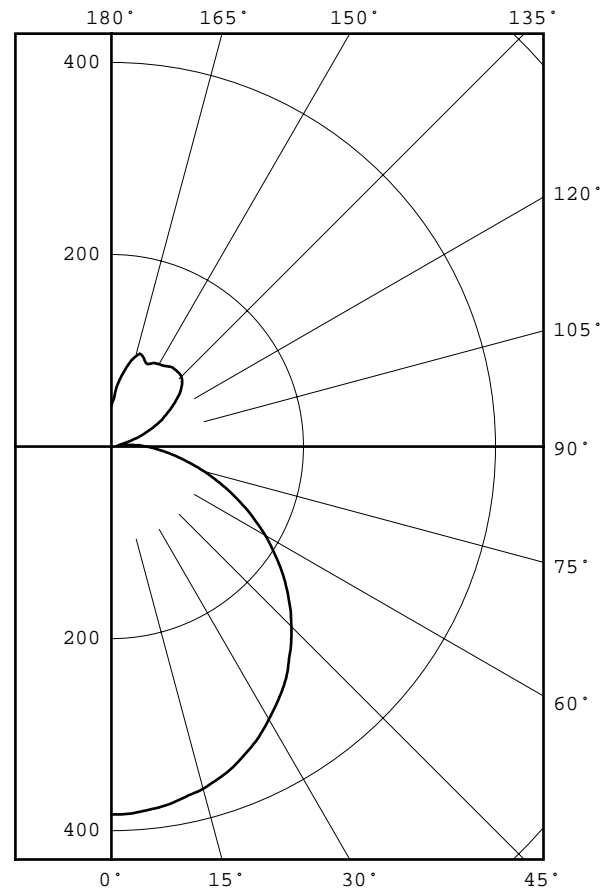
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DEG	CANDELA	LUMENS
0	383	
5	381	36
15	369	104
25	345	159
35	310	194
45	265	205
55	213	191
65	156	154
75	100	106
85	54	60
90	36	
95	18	21
105	15	17
115	49	48
125	81	72
135	103	79
145	102	64
155	95	45
165	97	27
175	62	6
180	43	

ZONAL LUMEN ZONE	SUMMARY LUMENS	%FIXT
0- 30	299	18.8
0- 40	493	31.1
0- 60	888	55.9
0- 90	1208	76.1
90-120	87	5.5
90-130	159	10.0
90-150	302	19.0
90-180	380	23.9
0-180	1588	100.0

EFFICACY = 57.1 lm/W
CIE TYPE - SEMI-DIRECT
LUMINAIRE SPACING CRITERION = 1.27
PLANE : 0-DEG 90-DEG
SHIELDING ANGLES : 90 90
BEAM ANGLE (50%) : 117.7 DEGREES
FIELD ANGLE (10%) : 178.7 DEGREES





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LUMINOUS DIAMETER: 15.000
HEIGHT OF SIDE : 3.000

LUMINANCE DATA IN CANDELA/SQ M
ANGLE AVERAGE
IN DEG

45	2620.
55	2389.
65	2094.
75	1738.
85	1390.



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CANDELA DISTRIBUTION

0.0	383
5.0	381
10.0	376
15.0	369
20.0	359
25.0	345
30.0	328
35.0	310
40.0	288
45.0	265
50.0	240
55.0	213
60.0	185
65.0	156
70.0	127
75.0	100
80.0	75
85.0	54
90.0	36
95.0	18
100.0	7
105.0	15
110.0	32
115.0	49
120.0	65
125.0	81
130.0	95
135.0	103
140.0	104
145.0	102
150.0	99
155.0	95
160.0	98
165.0	97
170.0	81
175.0	62
180.0	43



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5-DEGREE ZONAL LUMEN SUMMARY		
0- 5		9
5- 10		27
10- 15		44
15- 20		60
20- 25		74
25- 30		85
30- 35		94
35- 40		100
40- 45		102
45- 50		102
50- 55		99
55- 60		92
60- 65		83
65- 70		71
70- 75		59
75- 80		47
80- 85		35
85- 90		25
90- 95		15
95-100		6
100-105		5
105-110		12
110-115		20
115-120		28
120-125		34
125-130		38
130-135		40
135-140		38
140-145		35
145-150		30
150-155		25
155-160		20
160-165		16
165-170		11
170-175		5
175-180		1

10-DEGREE ZONAL LUMEN SUMMARY		
0- 10		36
10- 20		104
20- 30		159
30- 40		194
40- 50		205
50- 60		191
60- 70		154
70- 80		106
80- 90		60
90-100		21
100-110		17
110-120		48
120-130		72
130-140		79
140-150		64
150-160		45
160-170		27
170-180		6



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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0	
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30		10
0	113	113	113	113	113	108	108	108	108	98	98	98	89	89	89	80	80	80	76
1	102	97	93	88	88	97	92	88	85	84	81	78	76	73	71	69	67	65	61
2	93	84	77	71	71	88	80	74	68	73	68	63	66	62	58	60	56	54	50
3	84	73	65	59	59	80	70	63	57	64	58	53	58	53	49	52	48	45	42
4	77	65	56	49	49	73	62	54	48	56	50	44	51	46	41	46	42	38	35
5	70	58	49	42	42	67	55	47	41	50	43	38	46	40	36	42	37	33	30
6	65	52	43	36	36	61	49	41	35	45	38	33	41	36	31	38	33	29	26
7	60	47	38	32	32	57	45	37	31	41	34	29	38	32	27	34	29	26	23
8	56	42	34	28	28	53	41	33	28	37	31	26	34	29	24	32	27	23	21
9	52	39	31	25	25	49	37	30	25	34	28	23	32	26	22	29	24	21	19
10	49	36	28	23	23	46	34	27	22	32	25	21	29	24	20	27	22	19	17

ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS TEST SAMPLE.

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Goniophotometer Calibration

Calibration Lamp: GE 1000W, 120V, T6, CL (FEL)
Lamp Number: ITL78966-1000-38
Calibration Current: 8.300 Amps DC
Total Luminous Flux: 25889.0 Lumens
Calibration Date: 12/05/2016

<i>Test Equipment Used</i>			
<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
<i>Goniophotometer</i>	ITL/HLI LAB 1 - Test Distance: 31.74'	N/A	N/A
<i>Power Analyzer</i>	Yokogawa / WT 332	C2QA27071V	11/2/2017
<i>Power Source</i>	Voltage-Regulated House Power	N/A	N/A
<i>Thermometer</i>	National Instruments / USB-TC01	176F47B	11/7/2017

Sphere Calibration

Calibration Lamp: EIKO 28V75W/E10
Lamp Number: SCL-1400-J136
Calibration Current: 2.679 Amps
Total Luminous Flux: 1427 Lumens

<i>Test Equipment Used - Color & SPD; THD & Power Factor</i>			
<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
<i>3-Meter Sphere</i>	Labsphere / LMS-3M	N/A	Calibrated Weekly
<i>Thermometer</i>	National Instruments / USB TC01	1912751	11/2/2017
<i>LAMP Power Meter</i>	Yokogawa / WT332	C2QA27075V	11/1/2017
<i>Power Supply</i>	Chroma / 61602	616020002113	N/A
<i>Aux Lamp Supply</i>	Labsphere / LPS-100-0833	031159372	10/31/2017
<i>Cal Lamp Supply</i>	Labsphere / LPS-150-0268	1218148505	12/1/2017
<i>Spectrometer</i>	Labsphere / CDS 1100	0624117792	N/A

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